

2013 University Lake Vegetation Control Plan

LDWF, Inland Fisheries

1. Waterbody type – shallow impounded swamp
2. Age and condition of control structure – Fair to poor condition, probably has not been used since restoration work was finished in May 1983. City/parish owns the structure.
3. Type of control structure – Spillway – University Lake, Gate size – 82” wide, 30.5” tall, Number of gates - 2
4. Water level range (MSL) – University Lake is maintained at 22.8’ mean sea level (MSL). The Lake District is within the Federal Emergency Management Agency 100-year flood plain. Base Flood Elevation is set at 25’ MSL. At 25’ MSL, the lake system has an approximate storage of 935 acre feet. The lake system rarely fluctuates more than 2 feet from pool elevation.
5. Surface area – 195 acres
6. Average depth – 2.1 feet, proposed 5 feet after renovation (5.5ft max)
7. Watershed ratio – Watershed for the University Lakes totals 1,071 acres. Watershed to lake area is approximately 4:1. There are also 35 storm water outfalls into the lake that are major contributors to discharge, water quality and sedimentation.
8. Drawdown potential of structure – N/A
9. Waterbody Board or Lake Commission – Louisiana State University up to elevation 22.6 MSL. Louisiana State University owns the lake and water bottom. The city/parish owns the spillway structure. No active lake association.
 - a. Creation / Nomination – University Lake was constructed in 1938 by the Emergency Relief Administration. Louisiana State University owns the lake and water bottom. The city/parish owns the spillway structure.
 - b. Primary contact information – LSU Facility Services – (225) 578 - 6964
 - c. Procedures for spillway openings – No drawdowns have been conducted to date.

What significant stakeholders use the lake?

100% of the shoreline is developed by either private or public interests. This includes residential property, bicycle and walking trails, roadways, bird sanctuary and BREC park facilities. A Baton Rouge Recreation park is located adjacent to Stanford Avenue near the spillway of University Lake. A majority of the recreational fishing effort on the lake is from the shoreline.

What are their needs and concerns? What is the history of aquatic vegetation complaints?

Sparse stands of coontail (*Ceratophyllum demersum*) that once existed in the lake’s coves have since disappeared due to siltation issues.

Water hyacinth (*Eichornia crassipes*) and water lettuce (*Pistia stratiotes*) are the two floating aquatic plants that cause problems in University Lake. These two exotic species can take over large coves of the lake.

American lotus (*Nelumbo lutea*) takes over one very shallow cove each year (see type map). Several complaints were received in late summer 2012 from homeowners that live in that cove. Their complaint was the inability to use the lake from their property and the aesthetic

issues caused by the dense lotus growth. Treatments are necessary to prevent spreading into the main lake.

Have there been any controversial issues on the lake?

- 1978 – EPA provides a grant to the city of Baton Rouge for lake restoration. The goals of the restoration project were to remove phosphorus-laden sediments, increase retention times, increase water depths, and to improve dissolved oxygen levels.
- 1981-1983 – As part of the restoration project, University Lake is dredged along with City Park, Campus, and College lakes. Effectiveness of dredging was limited due to numerous stumps from the original swamp. Sewer lines were also repaired in an effort to reduce fecal coliform contamination. These restoration efforts resulted in a general improvement of water quality.
- 1991 – Post Restoration Report completed by Louisiana State University. The report assessed the permanent impacts of the 1981-1983 restoration efforts. It states that the most improvement was in the lakes' fishery and the cessation of the nearly annual fish kills. It also noted that recreational use had increased and the water quality showed improvements. Despite the improvements, it states that efforts to improve water quality need to be continued to secure the future of the lakes.
- 2005 – The U.S. Army Corps of Engineers (USACE), under the authority of Section 206 of the Water Resources Development Act, initiates an Aquatic Ecosystem Restoration Feasibility Study for a proposed restoration project. The purpose of the proposed project is to restore aquatic ecosystem function in the existing lakes in the Lake District. The federal/local cost for the project is \$7 million, with a 65/35 percent split.
- 2008 – USACE Feasibility study is completed and the amount of the project balloons to \$21 million.
- 2009 – The federal cap for the proposed restoration project is \$4.6 million. Local sponsors (LSU, BREC and city-parish government) are unable to provide the funds needed to execute the plan.

Aquatic Vegetation Status:

Problematic Species (predictions for 2013)

Water hyacinth (*Eichhornia crassipes*) - 25 acres

Water lettuce (*Pistia stratiotes*) - 25 acres

American lotus (*Nelumbo lutea*) - 5 acres.

Approximately 90 percent of the shoreline is established with emergent vegetation, primarily wild taro (*Colocasia esculenta*). Submerged aquatic vegetation such as coontail (*Ceratophyllum demersum*) and fanwort (*Cabomba caroliniana*) are very rare as siltation has severely hindered their growth and establishment.

Limitations:

University Lake is a very shallow lake making it difficult to perform foliar applications with a

pump sprayer. Muddy water stirred up by the boat in shallow conditions makes the application more difficult and less effective. Spray drift is also a concern because of the close proximity to many homes on the lakeshore.

Past Control Measures:

Water hyacinth (*Eichornia crassipes*) was controlled with 2, 4-D at a rate of 0.5 gallons per acre.

History of water hyacinth control:

- 2006 – 87 acres
- 2007 – 20 acres
- 2008 – 30 acres
- 2009 – 39 acres
- 2010 – 4 acres
- 2011 – 20 acres
- 2012 – 2 acres

Water lettuce (*Pistia stratiotes*) was controlled with diquat (0.75 gallons per acre) with a non-ionic surfactant (0.25 gallons per acre).

History of water lettuce control:

- 2006 – 4 acres
- 2007 – 0 acres
- 2008 – 1 acre
- 2009 – 38 acres
- 2010 – 4 acres
- 2011 – 20 acres
- 2012 – 7 acres

Historically, water hyacinth and water lettuce have been controlled with a foliar application about twice a year. 2, 4-D was primarily used in the past to control water hyacinth. In recent years, diquat has been the herbicide of choice as water lettuce has been the more problematic plant.

American lotus (*Nelumbo lutea*) was controlled with diquat (0.75 gallons per acre) with a non-ionic surfactant (0.25 gallons per acre). A one-acre area was treated from a road-side spray application unit in late summer 2012 and is scheduled for re-assessment and possible re-treatment in early spring 2013.

Recommendations:

Water hyacinth and water lettuce tend to grow together in University Lake. For this reason, they should be controlled with diquat (0.75 gallons per acre) with a non-ionic surfactant (0.25 gallons per acre). American lotus should be controlled with glyphosate (0.75 gallons per acre) with a non-ionic surfactant (0.25 gallons per acre). Applications specifically targeting lotus should be performed in early/mid spring as soon as the lotus plants have emerged above the water surface. This treatment should be performed using a tank sprayer mounted in either a surface drive boat or airboat. If all areas cannot be accessed by boat for application, the use

of a roadside sprayer will be employed to at least maintain a clear shoreline area. Applications will be repeated as necessary throughout the growing season in order to prevent the spread of American lotus within the lake.

Typemap:

